



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/989,367

11/20/2001

Oscar E. Agazzi

2875.0280002

1105

26111

7590

11/28/2006

STERNE, KESSLER, GOLDSTEIN & FOX PLLC
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

TORRES, JUAN A

ART UNIT

PAPER NUMBER

2611

DATE MAILED: 11/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/989,367

Applicant(s)

AGAZZI, OSCAR E.

Examiner

Juan A. Torres

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46, 49 and 50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-14, 16-18, 20-46, 49 and 50 is/are allowed.
- 6) ☒ Claim(s) 15 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Regarding Rejections under 35 U.S.C. § 112:

The Applicant contends, "The Examiner rejected dependent claims 15 and 19 under 35 U.S.C. § 112 because there was insufficient antecedent basis for the claim 15 feature reciting "the difference between the channel model value and the output of the channel " Applicant has amended claim 15 to address this issue. Applicant therefore respectfully requests that the Examiner reconsider and withdraw the rejection of claims 15 and 19".

The Examiner disagrees, and asserts, that as indicated in the previous Office action "Claims 15 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As per claim 15, claim recites the limitation "the difference between the channel model value and the output of the channel is used to update all the FIRs" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. As per claim 19, claim 19 is rejected because depends directly from claim 15. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 19 recites the limitation "wherein a LMS algorithm is used to update all the FIRs" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim" (emphasis added).

It seems, from the Examiner point of view, that claim 15 should depend from claim 14 instead of depend from claim 11.

For these reasons and the reason stated en the previous Office Action, the rejection of claims 15 and 19 under 35 U.S.C. § 112 are maintained.

Regarding Rejections under 35 U.S.C. § 101:

Applicant's arguments, see Amendment - After Non-Final Rejection, filed 10/04/2006, with respect to claims 1-22 and 51 have been fully considered and are persuasive. The rejections of claims 1-22 and 51 under 35 U.S.C. § 101 have been withdrawn.

Regarding rejection of claims 1 and 11:

Applicant's arguments, see Amendment - After Non-Final Rejection, filed 10/04/2006, with respect to claims 1 and 11 have been fully considered and are persuasive. The rejections of claims 1-22 and 51 have been withdrawn.

Regarding rejection of claims 23 and 30:

Applicant's arguments, see Amendment - After Non-Final Rejection, filed 10/04/2006, with respect to claims 23 and 30 have been fully considered and are persuasive. The rejections of claims 23-36 have been withdrawn.

Regarding rejection of claims 37 and 40:

Applicant's arguments, see Amendment - After Non-Final Rejection, filed 10/04/2006, with respect to claims 37 and 40 have been fully considered and are persuasive. The rejections of claims 37-42 have been withdrawn.

Regarding rejection of claims 43 and 46:

Applicant's arguments, see Amendment - After Non-Final Rejection, filed 10/04/2006, with respect to claims 43 and 46 have been fully considered and are persuasive. The rejections of claims 43-46 and 49-50 have been withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 15, claim recites the limitation "a difference between the channel model value and the output of the channel is used to update all the FIRs" (emphasis added) in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

As per claim 19, claim 19 is rejected because depends directly from claim 15.

Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 recites the limitation "wherein a LMS algorithm is used to update all the FIRs" (emphasis added) in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Allowable Subject Matter

Claims 1-14,16-18, 20-46 and 49-50 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: Claims 1-14,16-18, 20-46 and 49-50 are allowed because the references cited fail to teach, as applicant has, a method for enhancing the behavior of an optical fiber data channel the method comprising determining a sequence of data input to the optical fiber data channel, using at least part of the sequence of data input to the data channel as an index to a channel model value, sampling the data after it has passed through the channel to produce a sampled value, comparing the channel model value with the sampled value, and adjusting the channel model value based on the results of the comparison between the channel model value and the sampled value, identifying non-linearities in the optical fiber data channel based on the adjusted channel model, and compensating for the non-linearities to enhance channel performance; equalizing an optical signal, modulated with a digital signal, received over an optical channel comprising converting the optical signal into an electrical signal, summing the electrical signal with a correction signal, providing the summed signal to a detector, detecting the summed signal to produce decisions, providing the decisions to a nonlinear channel estimator, estimating the correction signal in the nonlinear channel estimator, and adapting the estimating in the nonlinear channel estimator in accordance with the decisions; decoding a signal received over an optical channel comprising receiving a signal including linear and nonlinear components, estimating, in a nonlinear channel estimator having a memory width, expected values of the received signal, computing

branch metrics over a number of states based on the expected values of the received signal, wherein the number of states corresponds to the memory width, providing the computed branch metrics to a Viterbi decoder, and Viterbi decoding the received signal using the branch metrics provided to the Viterbi decoder; and detecting digital data modulated on an optical signal and received over an optical channel comprising converting the optical signal to an electrical signal, converting the electrical signal to a multibit digital representation, estimating distortion introduced in the optical signal by the optical channel, compensating the multibit digital representation for the distortion, and detecting the digital data from the compensated multibit digital representation, as the applicant has claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 2611

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Juan Alberto Torres
10-18-2006

TEMESEHEN
PRIVATE EXAMINER
11/24/06
ak